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August 18, 1951

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



or Heavenly Eye

See Page 110

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## PSYCHOLOGY

# Let Asiatics Police Korea

**Countries of non-Communist Asia should share responsibility with Western nations for keeping the peace there.**

► IN ARRANGEMENTS for a truce in Korea, the U. S. should shift the responsibility for policing Korea to the Asiatics in part. India, Pakistan, Indonesia and Siam should share 50-50 with Australia, the U. S. and Europe the responsibility for keeping peace in Korea.

This is the suggestion made in an interview by Prof. Filmer S. C. Northrop, social and legal philosopher of Yale University. Prof. Northrop recently spent five months in Asia studying the ways of thinking of Oriental peoples under a grant by the Wenner-Gren Foundation. Earlier, he lived in China for a period.

We should work toward a truce which would allow one united Korea with elections supervised by the UN, Prof. Northrop believes. If U. S. troops are in the minority there, he points out, the Communists would be put on the spot if they refused to allow the UN commission to operate.

If the Asiatic people should request us to aid them in the policing, as they may because of the expense, and we do so, the Communist propaganda would be spiked. We could not be considered as furthering imperialistic ends if we are acting on the request of Asiatics themselves.

It would be better not to center the buffer zone on the 38th parallel, in Prof. Northrop's opinion. It is not a natural bumper line; the people are the same on both sides of the line. It would be better to call the truce where the troops now are; some to the north of the parallel and some to the south. The 38th parallel was originally proposed by the Communists to divide Korea because it is Communist strategy to divide countries, creating an untenable position. We accepted before we realized what they were up to.

Another reason for setting the buffer zone at a defensible position is to penalize the Communists. The only hope for world peace is the establishment of legal order, Prof. Northrop explained. The flouting of legal order must be penalized. The Communists have flouted this order and world opinion and the setting of the buffer zone at the location proposed by the UN is the smallest penalty that could be devised.

Prof. Northrop emphasizes the need for taking Asian ways of thinking into account in planning our foreign policy in Asia in a report to the current ANNALS OF THE AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE.

Because Russia has kept Asian mentality and values continuously in mind, he writes,

she has been able to jockey us into the position of appearing to Asians as stubborn, uncompromising folk who are warmakers rather than preservers of the peace.

In India and Asia in general, Prof. Northrop's study revealed, compromise and peace-

making are considered more important than adherence to any principles or laws.

That is because of their religious background. We of the Western world who follow a theistic religion feel that the only just way to settle a dispute is to bring it under a general rule or law. We think of the right as something definitely laid down.

But people brought up in the religions of Asia such as Confucianism, Hinduism and Buddhism consider laws and principles as transitory and hence not worthy to be made a basis for governing conduct. They do not refer to legal codes except as a last resort.

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## MEDICINE

# Cross Circulation Succeeds

**In seven cases the arteries of two individuals were successfully linked. Has potentialities in leukemia research and other blood disease studies.**

► Progress toward using the blood system and vital organs of healthy individuals to save the lives of the sick has been reported by physicians in the University of California School of Medicine.

The scientists reported successful complete cross-circulation of blood in man in seven instances. In cross-circulation the arteries of two individuals are linked, and the two blood systems become as one.

The technique is very similar to parabiosis, the joining together of experimental animals so widely used in medical research for many years. It is also similar to the coupling of some Siamese twins.

Earlier work of this type has been called, usually, cross-transfusion. In most cases pumps or other mechanical devices have been used, and most often blood has been exchanged through the linkage of veins rather than arteries.

In the California work the heart of the healthy partner acts as a pump, and the arterial connection creates a common blood pool.

The work was originated to investigate a new theory about leukemia.

Cross circulation has been maintained for as long as 26 hours, the arterial connections being made by means of tubes. The scientists emphasized that at present the work is only in the experimental stage, that great care is needed in selecting partners, and that only certain volunteers are accepted.

They said, however, that in addition to its potentialities in research in leukemia and other blood conditions, the technique in time may be used in treatment of many conditions.

For example, it might make new heart operations possible. Further work should

make it possible to by-pass blood circulation around a damaged heart, a normal heart doing the pumping, while repairs are made.

It may be possible by cross-circulation to rest damaged organs such as the liver and kidneys. Normal organs would do the work of overburdened organs.

In poliomyelitis, an immune person might be cross-circulated with a sick individual, providing antibodies to fight the infection.

In parabiosis of animals, cross-circulation makes it possible for animals given lethal doses of radiation to recover. The same may be true for man.

The work was done by Drs. Howard R. Bierman, Ralph L. Byron, Keith H. Kelly, Kenneth S. Dod, and Miss Patrice M. Black, in the Laboratory of Experimental Oncology, a division of the National Cancer Institute in the School. Assistance was given by the Damon Runyon Fund and the American Cancer Society.

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## STATISTICS

# Accidents Worse Than Flu, Pneumonia, TB

► NEEDED: A "miracle drug" to stop accidents.

The chances that a child born today will eventually die of an accident are greater than the combined risk of death from pneumonia, influenza and tuberculosis, report Metropolitan Life Insurance Company statisticians.

The so-called "miracle drugs" are credited with part of the decrease in chances of dying from pneumonia and tuberculosis while there has been little change in chances of dying in an accident.

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## ENTOMOLOGY

# Special Cell Action in Bees

Insects may have in their brain some property not available to man to account for their staggering complexity of behavior.

► BEES and other insects may have in their brains some property of living cells that is not available to human beings and other back-boned animals.

This was suggested by Dr. C. F. A. Pantin, zoologist of Cambridge University, in his presidential address to the zoology section of the British Association for the Advancement of Science meeting in Edinburgh.

The honey bee has a brain that weighs about a millionth of man's central nervous system yet this insect has a staggering complexity of behavior. The one-celled protozoa have no nerves and no complex cellular sense organs, yet they act very much like higher animals in many respects.

It is dangerous to assume, Dr. Pantin said, that there is only one possible mechanism by which animals can do certain things. Any machine, living or non-living, in order to achieve purposive behavior must have a mechanism able to integrate

present and past stimuli, since that is needed to predict what the machine must do next. Such machines are necessarily extremely complex and specialized. But they are not necessarily the same kind of machines to do the same things.

"Surprisingly enough," Dr. Pantin pointed out, "more than one stock of animals has independently evolved a nervous machine of precisely this kind, in the teeth of apparent improbability."

In the way that living things have developed by the process of evolution, Dr. Pantin recognizes both the workings of natural selection and an abstract plan. This plan is not peculiar to living things, however. There is nothing vitalist about it. It emerges from the unique properties of matter and energy, and even its more complex consequences govern the constitution of inanimate objects like calculating machines, as well as living systems.

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*The British Association for the Advancement of Science is holding its 113th annual meeting at Edinburgh, Scotland, this week. Leading scientists of England and other parts of the world are contributing papers. Coverage of the meeting for readers of SNL is contained in articles on this and the following page. Other reports will follow in next week's SNL.*

## GENERAL SCIENCE

## Prince Philip Asks Science to Aid Man

► SCIENTISTS as citizens have the duty to see that science is used for the benefit of mankind, for, of what use is science if man does not survive?

This statement by the Duke of Edinburgh, Prince Philip, speaking as its president, opened the annual meeting of the British Association for the Advancement of Science, Edinburgh.

Prince Philip, reviewing the British contribution to science and technology in the past hundred years, concluded that research workers and engineers have a dual responsibility, for their work and as citizens.

"The people who control the scientific machine," said the Duke, "both laymen and scientists, should have a proper understanding and appreciation of what science has grown into and its place among the great forces of the world."

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## CHEMISTRY

## Chemical Changes In People Foreseen

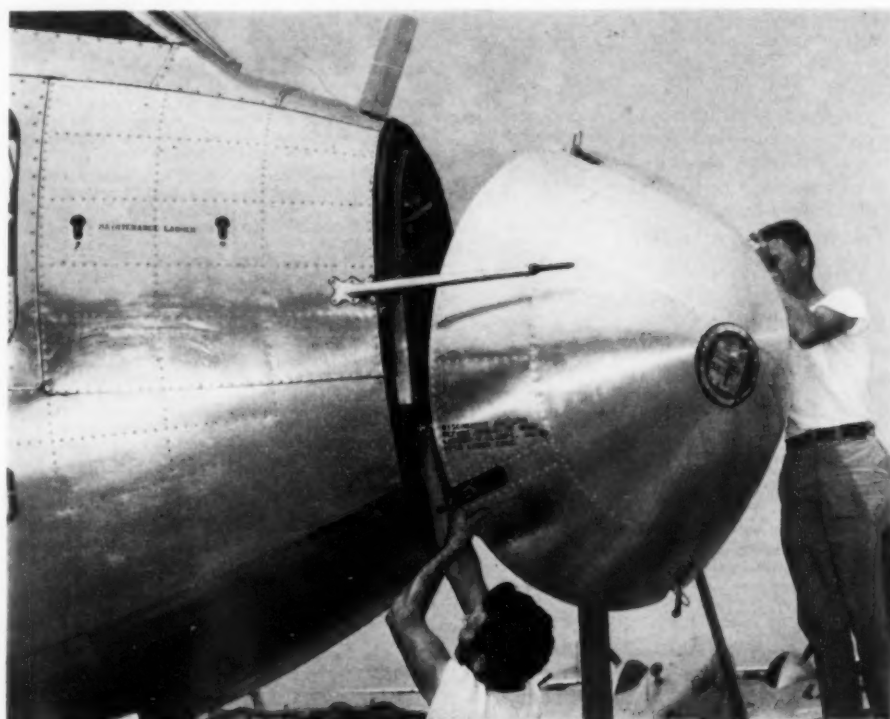
► THE DAY may well come in the future when a conscious molding of individuals and even of races by means of chemistry will present "problems of fearful fascination."

Sir Cyril Hinshelwood, Oxford professor of chemistry and foreign secretary of the Royal Society, made this prediction to the British Association for the Advancement of Science in Edinburgh in his presidential address before the chemistry section.

"As the cell reactions disclose their secrets, as physiology advances, and as the relation of chemical structure to effect on cell and tissue clarifies itself," Sir Cyril said, "there will emerge the possibility of deep-seated chemical intervention into processes which are now normally inviolate."

Chemically induced hereditary changes in cells are already known in crude fashion, and the influence of drugs on personality already gives concern to law and medicine, the British chemical authority emphasized.

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**HOMING NOSE**—These flight mechanics are attaching to the Flying Boxcar a new type of nose cap containing a glide path antenna. This antenna was formerly carried on an external mast; it is now enclosed to reduce drag.



## ENGINEERING

# Gas Turbines for Autos

► GAS TURBINES will be used in automobiles within the next 50 years to the exclusion of all other kinds of engines.

This was predicted in Edinburgh by Sir Claude Gibb, managing director of C. A. Parsons and Co., in his presidential address to the engineering section of the British Association for the Advancement of Science.

Even sooner, the jet or the gas turbine with jet will be used to the exclusion of all other means of propulsion for all types of aircraft, he said. This type of prime mover meets the requirements so admirably that it is difficult to see how any other

form of power unit can possibly compete.

On land, the gas turbine is more sorely pressed by its competitors, in Sir Claude's opinion. The steam turbine will be used for installations of large power, but the gas turbine will to a great extent supplement the diesel engine.

Gas turbines of 100 horsepower can be made to fit into the engine space of automobiles, and only a compact, low cost efficient regenerative heat exchanger needs to be developed.

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## MEDICINE

# Cortisone for Asthma

► CORTISONE pills may prove a boon, temporarily at least, for patients with severe, exhausting asthma who cannot be helped by other treatment.

Good results in nine out of 12 such patients are reported by Drs. Sidney Friedlaender and Alex S. Friedlaender of Wayne University College of Medicine, Detroit. (JOURNAL, AMERICAN MEDICAL ASSOCIATION, Aug. 11).

The good effects in asthma of cortisone and ACTH "shots" have already been reported. The pills, or tablets, of cortisone, however, have the advantages of being easier to take and giving quicker relief.

They have the disadvantage, the Detroit doctors warn, of being subject to greater abuse. Patients taking them should be constantly supervised and carefully watched for possible bad side effects of the hormone. The Detroit doctors think the medicine should be restricted to periods of extreme stress when nothing else helps, and that asthma patients should have careful,

thorough examinations to determine and remove the cause of the trouble, rather than relying on cortisone.

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## PSYCHOLOGY

# On the Beach One Eye Saw Redder than Other

*A letter to the Editor from Robert I. Myerson, New York City.*

► I HAVE been a reader and fan of SNL for many years, and have always been enlightened and entertained by its varied and excellent content. However, I had always felt that the "science" part of your sponsoring organization's title was the only part of any real significance in more than general terms. I now find I must revise my estimate and endorse the "service" half of the title as well.

On the beach last Sunday I was disturbed by the observation that my right eye saw

things redder than my left. I made a note of this phenomenon and decided to have my eyes checked at the earliest opportunity. Since my visual acuity did not seem to be impaired, I read the mail Monday with no hesitation. You can imagine my interest and gratification in the article, SNL July 28, p. 54, of the current volume. I think anyone will agree that this is "service" with a vengeance.

I thought you might be interested in the timeliness, to one of your readers at least, of what might not ordinarily be more than something of rather general intellectual interest.

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## OCEANOGRAPHY

# Immense Sand Deposits

**Gulf coast has enough sand to line the entire coasts of United States and Mexico 10 feet deep. Multiple beaches have been growing gulfward.**

➤ AN ASTONISHING amount of sand has been deposited on the Gulf of Mexico's shorelines by waves and currents in the 2,000 to 5,000 years since the sea rose to its present level.

This has been discovered by Dr. W. Armstrong Price of the department of oceanography of the Agricultural and Mechanical College of Texas, College Station, Tex.

On the gulf coast there is enough sand to line the entire coasts of the United States and Mexico 10 feet deep.

Great lengths of the gulf shore lines have multiple beaches and have been growing gulfward. This sand gives an indication of still more immense amounts of finer sediments deposited with it, but farther offshore. Some of the sand came from rivers, the rest from erosion of shallow bottoms by waves and currents.

Galveston stands on a low, sandy barrier island that is merely a beach thrown up several miles offshore where storm waves have been grounding through the centuries. But this beach is multiple. Galveston Island is composed of some 20 low, parallel ridges of sand separated by shallow marshy swales. The 20 ridges represent a two-mile growth of the island toward and into the gulf, with the beach having shifted gulfward as many times. At each shift it grew by building a new beach in front of and overlapping the older one.

The multiple beach condition has been observed on the great barrier islands of Texas from the Rio Grande to the Colorado and from east of the Brazos to Louisiana. In western Louisiana, where marsh forms the coast, old beach ridges are found stranded in the marsh and separated by marsh strips. This repetition of beaches shows rapid outbuilding of the coast there. These sandy ridges in the marsh are called "cheniers" in Louisiana because they are lined in places with live oaks (French, *chêne*, oak tree).

Multiple beaches belonging to the present sea level have been studied along a total of 400 miles of the Louisiana and Texas coast. There is an average of about 17 beach ridges along this 400 miles. Beaches line a total of at least 1,200 miles of the gulf shorelines. With one beach for 1,200 miles and 16 additional old beaches for 400 miles, there is a total of 7,600 miles of beaches so far known. The width of the barrier islands of parts of Florida and Mexico suggest that there are probably many more miles of old beach ridges there.

The 7,600 miles of beaches on gulf shores would supply the entire coast line of the United States and Mexico with a beach or with an additional beach ridge, where they already have beaches.

From many parts of the coast, there can be seen inland another line of sandy barrier islands sitting high and dry at an old abandoned shoreline. In places in Florida there are two of these ancient shorelines, one behind the other. Examination shows that these ancient barrier islands are also composed of parallel beach ridges and that an equal amount of beach sand per mile of length is stored along them, where they are still preserved.

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## RESOURCES

## Get Both Sulfur and Iron From Iron Sulfide Source

➤ WORLD SHORTAGES of sulfur, and the industrial sulfuric acid made from it, may be relieved by utilizing Minnesota's great deposits of iron sulfide to obtain both sulfur and iron.

This is the hope of government scientists working in the laboratories of the U. S. Bureau of Mines at the University of Minnesota. The objective is to find practical means to recover both sulfur and iron from the iron sulfide deposits. Also under study is the problem of recovering manganese from low-grade manganese-bearing iron ore which is plentiful in the state.

Sulfur is on the government's critical materials list. The sulfuric acid made from it is an essential in many industrial processes. Most important is in making the superphosphate fertilizers on which American agriculture depends in large measure. But it is also widely used in making insecticides, paper pulp, explosives, dyes and coal tar, rubber, paint and varnishes. The world demand for sulfur can no longer be met by the natural sulfur mined in Louisiana, Texas and other parts of the world.

Greatly increased production of domestic manganese, essential in steel making, is important to enable the nation to be self-sufficient in this basic metal. America has plentiful manganese ore but it is low-grade. Every ton of steel made requires about 13 pounds of manganese. Only about 10% of the amount now used is produced in the United States.

America's present supply of manganese comes largely from India, Africa and Brazil.

A decade ago it came from the Soviet Union but this source of supply is now practically closed. Great deposits of manganese-bearing formations are found in Minnesota's Cuyuna Iron Range. However, the ore has little practical value until a commercial method of reducing it has been developed.

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## ENTOMOLOGY

## Ant-Free Orange Trees Yield Healthier Fruit

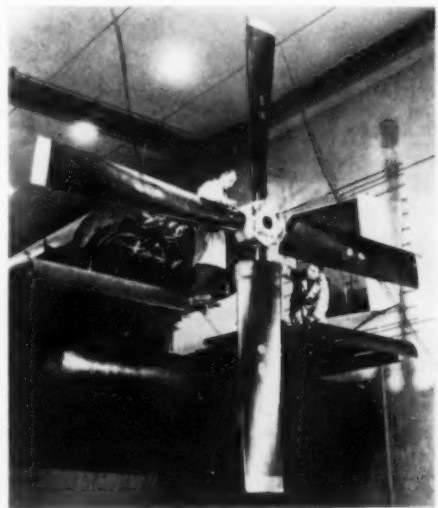
➤ ORANGE, grapefruit and lemon trees are healthier and give bigger and better fruit if they are kept free of ants. Not that the ants harm the trees—they attack the natural enemies of some of the tree's worst pests.

Ants are not directly interested in the fruit tree pests, but their presence allows the mites, aphids, mealybugs, scales, etc., to multiply without being cut down by their specific insect enemy, the kind eliminated by ants.

Having ants around citrus trees causes a drop in leaf and fruit production and fruit from infested trees is smaller. Dr. Paul DeBach and E. J. Dietrick and C. A. Fleschner of the University of California College of Agriculture have found. They are studying control of orchard pests by their natural enemies, a method known as biological control.

When ants are around, the number of mites increases as much as 20 times normal, they found. Trees used in their experiments had not been treated with insecticide for a number of years.

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**RUBBER FILLED** — A filling of sponge rubber makes these propeller blades hard and strong and keeps them from vibrating in and out under extreme pressures.

## METEOROLOGY

# Where Hurricanes Start

Born in the belt of the doldrums, which are farthest north this time of year, big winds can take several kinds of paths.

► LATE AUGUST or September is the beginning of the hurricane season in the Atlantic. In late summer and early fall, swirling winds from the hot humid areas north of the equator are likely to lash out over the tropical portion of the western Atlantic, West Indies, and south and east coasts of the United States.

High temperatures and humidity team up with converging winds in the late summer and early fall to make these superstorms. The rotation of the earth causes the whirling motion.

Born in the belt of doldrums, towards which the trade winds blow from both sides, the hurricane is the western Atlantic's version of the typhoons of the western Pacific. Although the doldrums exist throughout the year, they are farthest north at this time, and so in the best position for the earth's rotation to start whirls. Also, the available energy to develop such storms is greatest now. This energy is in the form of the latent heat of the great abundance of water vapor discharged from the hot surface of the strongly sunned ocean.

The air in a circle anywhere from about 50 to 500 miles in diameter presses in toward the central low pressure core, swirling around in a spiral faster and faster until its centrifugal force is so strong that it moves in a circle about 10 to 30 miles in diameter, inside of which there is almost no wind.

## AERONAUTICS

# Plane Seats Reversed

► BACKWARD-FACING seats for passengers in airplanes are again recommended by the U. S. Air Force as a forward step in lessening injuries in case of a crash. To determine the reaction of passengers flying backward, a group of 20 aviation writers was given a trans-continental round trip by the Military Air Transport Service in seats facing to the rear.

On the whole, these writers found the seating arrangement satisfactory. Takeoffs and landings were little different from that with conventional seating, they found. The view to the rear was as good as the view to the front. The majority of the men seemed to feel the backward-seating arrangement desirable because of the safety features involved.

As the whirling wind ascends, it cools and much of the vapor in it condenses, liberating latent heat. This keeps the central zone warmer and less heavy than the surroundings, and thereby maintains the low pressure, on the existence of which the continuance of the storm depends.

Because of the rotation of the earth, hurricanes swirl in different directions in the two hemispheres. In the northern hemisphere, the rotation is counter-clockwise, and in the southern hemisphere it is clockwise.

Hurricanes can take several kinds of paths, depending on the location of the pressure areas in their vicinity. A hurricane tends to follow the southern and western border of the semi-permanent Atlantic high pressure area. The hurricane thus usually moves in a parabola, though a comparatively straight line is common. Occasionally, it may loop, crossing over the same spot twice.

Tearing over the waters of the western Atlantic, the storms expend enough energy in a single day to run all the power plants in the world for several years. But this tremendous energy has never been harnessed. Thrown against coastal cities, it has caused great disaster. The worst American hurricane disaster claimed 6,000 lives at Galveston, Texas, in 1900.

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pound head forward to hit against the back of the seat ahead with a force much greater than that actually working on the aircraft structure at that point, Air Force officials state.

In other words, they continue, the passenger held back by his seat belt endures in his body, especially his belly, only the impact of the plane. But his head really hits alone, and hits with much more force than if the whole body accompanied it.

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## MEDICINE

# Mamma Spanks Son, Gets Clot in Vein

► A 41-YEAR-OLD housewife "swung her right arm forcibly to spank her son." Soon after, the palm of her hand was blue and painful. Next morning her right arm was swollen and dark with the veins showing prominently. A day later she had a sudden pain in the left side of her chest and was short of breath.

This muscular woman, who claimed she could crack nuts and remove soda bottle caps "without the aid of the usual tools," had given herself an attack of "effort" thrombosis, or clot, in the underarm vein by the violent arm swing when she spanked her child.

Her case is reported by Drs. Theodore Barnett and Leon M. Levitt of New York. (JOURNAL, AMERICAN MEDICAL ASSOCIATION, Aug. 11).

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## MEDICINE

# Shoot Neutrons at Anti-Anemia Vitamin

► THE anti-pernicious anemia vitamin B-12 has been made radioactive by neutron bombardment in the research reactor at Brookhaven National Laboratory.

As a result, medical scientists should have plenty of the radioactive vitamin for tracer studies in research to learn how the vitamin helps fight pernicious anemia.

Each molecule of vitamin B-12 crystals contains an atom of cobalt 59, the naturally occurring form of cobalt. When the vitamin crystals are irradiated by neutrons in the reactor, the cobalt is changed to cobalt 60, which is radioactive.

Heretofore the only method of making the vitamin radioactive was to feed cobalt 60 atoms to the mold from which the vitamin is produced commercially by fermentation.

The reactor method producing radioactive B-12 is described by Dr. R. Christian Anderson and Yvette J. Delabarre of Brookhaven. (JOURNAL, AMERICAN CHEMICAL SOCIETY, August).

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## PUBLIC HEALTH

# Water Tests Speeded

**Use of membrane filter disks about the size of a silver dollar will also cut the cost of bacterial tests. Very important to bacteriology.**

► **FASTER, MORE ACCURATE** testing of water supplies for purity and freedom from germs is promised through a membrane filter apparatus which has just undergone successful tests by the U. S. Public Health Service at its environmental health center in Cincinnati.

"This technique may prove to have an importance in bacteriology comparable to Koch's use of solid culture media," Surg. Gen. Leonard A. Scheele of the U. S. Public Health Service declared.

Mark D. Hollis, Assistant Surgeon General and Chief Sanitary Engineer, said: "The filter technique greatly improves testing in water bacteriology. It cuts down the time of analysis from a period of days to a period of hours. It reduces the number of operations needed for bacterial analysis. It makes it practical to take samplings of water many times larger than those employed by prevailing techniques. And it requires far less laboratory space and equipment. However, there is still much work to be done to establish and develop the full range of practical applications of this laboratory tool.

"The apparatus for the filter, described in the latest issue of PUBLIC HEALTH REPORTS, is so simple and so readily portable that bacteriologists may find it possible to extend their services to rural communities and other areas lacking the usual laboratory facilities.

"Although membrane filters have been

familiar to research workers for many years, the techniques developed at the Environmental Health Center suggest the possibility of their practical widespread use. The cost of bacterial tests using the filters will be much less than by procedures presently used."

Each filter is a disk about 0.1 mm. thick and 48 mm. in diameter, or about the size of a silver dollar. The pores are regularly spaced and vertical, tapering toward the upper end. The size of the pores may be varied in manufacture. Filters with the larger pores permit the passage of approximately a quart of water at a pressure of one atmosphere in less than a minute. A filter with the smallest pores requires 100 minutes for the passage of the water.

No bacteria pass through the filter, although viruses may get through, Mr. Hollis said.

After bacteria are trapped on the filter, the disk is placed in a Petri dish against a medium which encourages the growth of the organisms under investigation and simultaneously represses the growth of other organisms. The development of appropriate culture media was a major task of the investigation at the Environmental Health Center, reported by Harold F. Clark, Edwin E. Geldreich, Harold L. Jeter and Paul W. Kabler. Media which are suited to other methods of bacterial analysis are not necessarily suited to work with the filter, according to Clark.

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## ENGINEERING

# Filters Use Fine Fibers

**Finest glass fibers ever made may serve to screen out submicron dust and particles such as would result from atomic explosions.**

► **THE FINEST** glass fibers ever made by man—one pound would reach 10 million miles—are being produced.

The finest glass fibers previously turned out on a commercial basis were more than three times the size of the new product of Glass Fibers, Inc., Toledo, Ohio.

Even the shortest wavelength of visible light is greater than the diameter of the fiber, the exact thickness of which is a

military secret.

The new product is considerably finer than the 60/1,000,000ths of an inch fiber (about 1/20th the thickness of a human hair) announced last winter by the Naval Research Laboratory.

One possible use of the product, R. H. Barnard, president of the Toledo company, said, is in making a paper for filtering submicron dust and particles. Such paper would

stop particles resulting from atomic explosions.

It can filter particles smaller than 1/10,000,000th of an inch in an unprecedented manner, straining out all but one particle from more than 100,000.

The Naval Research Laboratory has pointed out the superiority of gas mask filters made from fine glass fibers.

Widespread use of the new glass paper in electrical equipment seems probable, Mr. Barnard pointed out. It may be used as insulating tape for wire and cable, when impregnated with suitable resins, he said.

Other possible uses include applications in motors, generators, transformers, power-type capacitors and condensers for electronic equipment and television and radio receivers.

Lower electrical losses, greater high temperature stability and greater capacity per unit of weight and size are possibilities of the capacitors and condensers made with the thin glass paper.

Current production is going to the armed forces. Small quantities for commercial laboratory experimentation are not even available. Plants in nearby Waterville and Defiance, Ohio, are in production for the Navy. The tiny fiber material will become available to industry by late fall or early in 1952. A multitude of new uses then are expected to be developed.

Science News Letter, August 18, 1951

## MICROSCOPY

# Mirrors Help Study Of Cancer Cells

► **DOING** it with mirrors is a new approach to the study of cancer cells. The mirrors are in a reflecting microscope, so-called because it magnifies by mirrors instead of lenses.

The distortion-free images obtained are expected to give scientists a chance to investigate normal, abnormal and cancer cells and, with the aid of a spectroscope, to get a record of their various light-absorbing and emitting properties. These may serve as guides for identification of cells in diagnosis of cancer.

This research, by Dr. Robert C. Mellors at Memorial Cancer Center, New York, will be continued through a \$10,000 grant from the National Cancer Institute, U. S. Public Health Service.

Study of how resistance develops to chemicals used in treatment of leukemia in children will be aided by a \$15,000 grant to the University of Southern California, Los Angeles.

A total of 150 grants amounting to \$1,416,760 for cancer research have just been made by the U. S. Public Health Service. The grants went to 78 hospitals, universities and other non-Federal institutions in 29 states, the District of Columbia and England.

Science News Letter, August 18, 1951

## PSYCHOLOGY

**Isotope Inspector Improves Efficiency**

► RADIOISOTOPES have a psychological effect on workers, improving their efficiency, the International Isotope Techniques Conference at Oxford, England, was told by a Dutch scientist, B. Schuil of Holland's Roentgen Technische Dienst.

Mr. Schuil's laboratory specializes in the use of atomically active isotopes for on-the-job inspection of welds between sections of large pipelines, radiographic pictures being taken through the welds with the penetrating gamma rays from these isotopes to reveal any defects.

Mere appearance of the radioisotopes inspector at a job, Mr. Schuil observed, reduced the proportion of defective welds from over 80% to under 20%, even though the inspector could not actually begin his checking for a couple of days after his arrival.

These figures are based on actual pictorial back-checks made on all the welds done before and after the inspector's arrival.

The appearance of the inspector with his "magic eye" radioisotopes had made such a psychological impression on the welders that they put their best effort into the job.

Science News Letter, August 18, 1951

## ZOOLOGY

**Mother's Cunning Protects Coyote Kid**

► A MOTHER'S cunning tactics have kept a coyote from preying on her kid—a baby antelope.

The first known record of how antelope does and kids behave when chased by a hungry coyote was made near Rapid City, S. D., by Wayne Davis and Donald Putnam of the South Dakota Department of Game, Fish and Parks.

The two men, making an airplane census of antelopes, saw what appeared to be "a lone antelope and a bouncing jack-rabbit." They quickly identified the animals as a doe and her kid antelope being chased by a coyote, heedless of the airplane circling above them.

When the coyote came within 50 yards of the kid, the doe dropped back behind the coyote, then with a sudden burst of speed, ran into its side, rolling the pursuer end over end. The doe repeated this performance twice, after which the coyote veered from side to side to avoid similar body contact.

After being joined by another doe, the antelopes outwitted the coyote as follows: While the mother doe continued to harass the predator, the second antelope and the kid veered off at right angles as they passed over the crest of a hill. Duped by the ma-

neuver, the coyote followed the doe, leaving the kid free to seek refuge.

The two men tried unsuccessfully to drive the coyote out of the area by buzzing it after the chase was over. The race took about 15 minutes and the total course covered about five miles, they report. JOURNAL OF WILDLIFE MANAGEMENT (July).

Science News Letter, August 18, 1951

## CHEMISTRY

**Energy Tossed Between Separated Molecules**

► ENERGY can be passed between the molecules over relatively long distances very much as a fast basket ball is passed. This discovery has been made by Drs. Margaret M. Moodie and C. Reid of the University of British Columbia's department of chemistry (JOURNAL OF CHEMICAL PHYSICS, July).

Extremely efficient transfer of energy occurs when two chemicals are dissolved in a rigid glassy material and irradiated by light of a wavelength absorbed by one of the substances, but not by the other or the material in which they are dissolved.

This phenomenon takes place when the material which picks up the energy is in the form of microcrystals rather than being dissolved.

In the discovery experiment anthracene emitted light, the energy of which was transferred to microcrystals of naphthalene, suspended in a glass of ether-isopentane-alcohol.

The scientists believe that the energy transfer which was a thousand times more efficient than when both substances are dissolved is either because the absorbing molecules have become lined up with the orientation of the glass, or that it is a phenomenon of the surface of the microcrystals themselves.

Such energy transfers are very important in the respiration process in living animals and in the process of photosynthesis by which the sunlight's energy is captured by the green plant. The discovery which has just been made may throw light on these two processes.

Science News Letter, August 18, 1951

## INVENTION

**Bathroom Cabinet Gives Inner Cabinet and Shelf**

► SOMETHING NEW in a bathroom cabinet for shaving and cosmetic materials is provided in an arrangement which brought George Wise, Washington, D. C., patent 2,561,681. It might be described as a cabinet within a cabinet. When the downward-opening front is opened it forms a convenient shelf and it also pulls the inner cabinet out so that contents are easily reached.

Science News Letter, August 18, 1951

**IN SCIENCE**

## MEDICINE

**Muscle Relaxing Drug Helps Lockjaw Victims**

► THREE SMALL boys with lockjaw, or tetanus, have been helped to recover by the synthetic muscle relaxing drug, mephenesin. The cases are reported by Drs. Truett C. Boles and James H. Smith of the Jackson Memorial Hospital, Miami, in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Aug. 4).

The boys were eight, six and two and one-half years old. One had stepped on a splinter. The others had each gotten a bad cut on the knee. None of them had had tetanus toxoid or any other immunizing "shots" before the accidents.

Tetanus antitoxin was given in each case to counteract the effect of the tetanus germs which cause lockjaw. The mephenesin was given to overcome the rigid, spastic state of the muscles. Instead of giving it by injection into veins or muscles, it was given through a plastic stomach tube. Results were "almost dramatic," the doctors report. The patients were very quickly able to take fluids by mouth, to open their jaws and eat and chew. Relaxation of all but the abdominal muscles was quickly attained. All three children recovered completely.

Giving the drug by mouth, the doctors believe, has definite advantages in this type of case.

Mephenesin is sold under the trade names Tolserol and Myanesin.

Science News Letter, August 18, 1951

## PLANT PATHOLOGY

**Sweet Gum Trees Dying Mysteriously**

► A POPULAR shade tree in the Washington, D. C., area, the sweet gum, is threatened with total destruction by a mysterious disease.

It takes the disease about two years to kill a tree, and of 3,000 sweet gums observed in the immediate area, 45% have so far been attacked. A virus is probably responsible for the destruction, though the exact cause is still a mystery, Dr. Paul R. Miller of the Department of Agriculture's Bureau of Plant Industry, Beltsville, Md., states.

The disease attacks the small branch tips and proceeds toward the main trunk. Trees affected shed their leaves by midsummer their first afflicted year, are dead by midsummer of the second. Muriel J. O'Brien is working with Dr. Miller to isolate the responsible agent and to try to find out how it spreads.

Science News Letter, August 18, 1951



# ENGINE FIELDS

## SURGERY

### Operation for Hiccup Saves Heart Patient

► WHEN A patient with the kind of heart disease called coronary thrombosis gets a bad attack of hiccups, his life may be in danger. If the hiccups go on, he is worried and frightened and may die of exhaustion.

A 70-year-old man was saved from such a death by a 2:30 a.m. operation, done at the bedside because the patient was too weak to be moved to the operating room. The case is reported by Drs. Samuel H. Rubin, Louis F. Albright, Paul K. Bornstein and David Schwimmer of New York. (JOURNAL, AMERICAN MEDICAL ASSOCIATION, Aug. 11).

The life-saving operation, in which the phrenic nerve to the diaphragm was crushed, was performed by Dr. Charles P. Bailey and his associate, Dr. Robert P. Glover, who were called in from Hahnemann Medical College, Philadelphia, to Fitkin Memorial Hospital, Neptune, N. J., where the patient was.

Science News Letter, August 18, 1951

## AERONAUTICS

### Hot-Nose Turbojet Engine Safe From Icing Problems

► CRASHES OF jet planes due to ice formation in the vicinity of the engine air intake, such as recently occurred with a group of eight planes on routine flight in the Midwest, will be prevented by new turbojets with "hot noses" developed by General Electric of Lynn, Mass.

This new engine, one of the most powerful ever designed, has passed all test stages and is ready for mass production. First installations will be in the six-engine, jet-propelled bomber, the Boeing B-47 Stratojet. It will replace the General Electric J-47 engines which are now used in this bomber, the fastest in the world. It was a Boeing Stratojet that crossed the continent in 1949, an air-distance of 2,289 miles, in a non-stop flight of three hours and 46 minutes.

The intake icing problem is solved with this new engine by hot air from the turbojet compressor which is fed into the hollow parts of the nose. The heat is sufficient to prevent the formation of ice crystals.

In addition, the air inlet screen, designed to keep foreign matter from going through the engine on the ground, is retractable in the air to give unobstructed air flow. The screen, which could serve as the foundation of an "ice dam," is retracted soon after the plane is in flight.

Science News Letter, August 18, 1951

The new engine is a version of the older General Electric J-47. Its official designation is the J-47-GE-23, called the "23" for short. Thrust provided by it is over 600 pounds more than its predecessor. It has a lower rate of fuel consumption, is completely de-iced, has a special ignition system which makes possible high altitude starts, and may be equipped with water injection for thrust increase.

Science News Letter, August 18, 1951

## DENTISTRY

### Fluorides for Mother May Protect Baby's Teeth

► THE FIGHT against toothaches and decay is being carried back to the period before birth in studies supported by the Dental Research Institute of the National Institutes of Health.

Sodium fluoride in drinking water is known to provide about 65% protection against tooth decay in children drinking such water continuously from infancy. Whether the same water taken during pregnancy will protect the offspring against tooth decay is to be investigated by Dr. Reuben Feltman of the Passaic General Hospital, Passaic, N. J. Support for this idea comes from surveys in South Africa showing that the baby teeth of children whose mothers had fluorine in drinking water during pregnancy were remarkably free from decay.

Dental defects and susceptibility to tooth decay may develop as a result of diseases during the late stages of pregnancy. Investigation of this possibility will be made by Dr. S. J. Kreshover of the Medical College of Virginia, Richmond, Va., through another of the 25 National Dental Institute grants totalling \$175,878 announced in Washington.

Science News Letter, August 18, 1951

## INVENTION

### Patented Process Gives High-Grade Soybean Oil

► SOYBEAN OIL substantially free of impurities, a product coming into wide uses ranging from foods to paints and plastics, is obtained by a refining process which brought Arnold L. Ayers, Bartlesville, Okla., patent 2,561,330. Rights have been assigned to the Phillips Petroleum Company of the same city. The process can be used for purifying soybean oil obtained from pressing or by use of a solvent.

It is described by the inventor as a two-stage process by which undesirable components of the oil are removed by liquid-liquid extraction from an oil-hydrocarbon solvent mixture with aqueous methanol, followed by a dilute aqueous solution of an alkali metal hydroxide, such as sodium or potassium hydroxide.

Science News Letter, August 18, 1951

## TECHNOLOGY

### Russians May Have New Machine Rifle in Reserve

► WHAT HAPPENED to Russia's Tokarev rifle? It has not shown up during the Korean war.

This is a situation which has American ordnance men puzzled. Perhaps, according to the magazine *ORDNANCE* (July-Aug.) the Russians "have developed this weapon into a machine-rifle and are just waiting for the proper time to spring it on a waiting world."

The Tokarevs were first produced in Russia in 1938 and were modified in 1940 and 1942 when the final form came out. What the magazine calls an "interesting" carbine on the Tokarev system was brought out in limited quantities in 1940.

It is believed that the rifle freezes up in cold weather. However, a frostproof oil was brought out to correct this. American ordnance men say that this freezing-up is not to be sneered at, in view of the fact that American rifles and machine guns, with ordinary lubricants, quit in Korea in cold weather as though soldered up solid.

The non-appearance of the Tokarev rifle has caused considerable speculation in this country, particularly since all the weapons given the North Koreans and Chinese Communists by the Russians have not been second line. Some have been first-grade.

Science News Letter, August 18, 1951

## GENETICS

### New Barley Shows Extent of Disease Damage

► AGRONOMISTS can now measure disease damage to such crops as barley without establishing chemically protected controls.

This new tool, developed by scientists of the University of California, is known to geneticists as "backcrossing"—a method of transferring a selected character from one variety to another by recurrent crossings to the desirable type.

A spectacular example is a barley known as Atlas 46, derived by backcrossing. It is a disease-resistant form of Atlas, the variety now grown on about 20% of the barley acreage of California. Atlas 46 has been used to measure damage from two of the most destructive barley diseases—powdery mildew and scald.

By comparing yields of the resistant Atlas 46 with those of Atlas, C. W. Schaller of the University of California was able to measure yield losses ranging from 3.8% for 1949's light infection, to 17.6% in 1947, a year of severe infection.

Similarly, he measured reduction in kernel weights from the effects of both scald and powdery mildew infections.

The use of the resistant variety as a measuring tool points to the economic advantage of replacing presently grown Atlas with Atlas 46. Annual savings to the barley industry might easily run to \$750,000.

Science News Letter, August 18, 1951

## GENERAL SCIENCE

# Lofty Research Laboratories

High on mountain tops all over the world, scientists are battling glittering snow and howling gales to carry on research in all fields of science.

By ANN EWING

► **HIGH ON** wind-swept mountain tops all over the world, scientists are battling howling gales, or learning to live with dazzling snow and the unearthly silences of these remote places.

They have made themselves modern mountaineers in lofty research posts, located on mountains in the Alps, in the Rockies and in the Andes. Here they are doing experiments, particularly in cosmic ray research, that can not be duplicated in laboratories at lower levels.

Some high altitude laboratories, for instance, are giving astronomers a chance to study the sun without interference from haze, dust or dense atmosphere. They can train coronagraphs, instruments for getting man-made eclipses, on the solar disk more accurately when the atmosphere is clear, not cluttered up with smoke and dust particles.

From such lofty spots, meteorologists can make continuous records of such information as the wind's speed and direction, the humidity and air pressure. Better weather forecasts may result, for these stations are helping to give a world-wide picture of the weather.

Medical scientists and biologists are studying the effects of high altitudes on the heart, on blood counts, on breathing and on the functioning of the various glands.

## 6,000 or 7,000 Feet High

When scientists speak of high altitude laboratories, they generally mean stations above six or seven thousand feet. At or below this height, there are many large cities with adequate facilities for all types of research, Denver and Salt Lake City in the United States, for instance.

Nairobi in Kenya and Arequipa in Peru are among examples of cities in other nations located at or well above the mile-high level.

In the altitude level from about 9,000 to 12,000 feet, there are a number of good stations equipped for cosmic ray and other research. Among the finest of these is the Jungfrauoch at 11,000 feet in Switzerland, which was built before the discovery of cosmic rays.

In 1880, the Jungfrau Railroad Company applied for a charter from the Swiss government and received it on the condition that the company establish a laboratory on the mountain.

Many governments have aided in its up-

keep since that time. Beginning in 1947, UNESCO—the United Nations Educational, Scientific and Cultural Organization—has given it international financial support.

At Jungfrauoch there is available not only the good supply of electricity needed for cosmic ray research, but workshop facilities for making equipment, a dark-room and a kitchen where scientists can cook their meals.

At almost exactly the same altitude in the Alps as the Swiss laboratory is the Italian station at Testa Grigia. Another outpost at this approximate altitude is in France's part of the Alps, on the side of Mont Blanc.

In the United States, there is a high altitude laboratory at Echo Lake, Colorado, with facilities comparable to those at Jungfrauoch. At 10,700 feet above sea level, Echo Lake is almost exactly two miles high, yet it can be reached by highway the year round. Thus getting equipment to the laboratory is quite easy.

## Cosmic Rays at Climax

Also close to Denver is the astronomical observatory at Climax, Colorado, where some cosmic ray as well as astronomical research studies are made.

The Peruvian government runs the Huancayo Observatory, located on an 11,000-foot plateau some 12 miles west of the town of Huancayo in the Andes.

A recent addition to stations at this level is the Sacramento Peak station in southeastern New Mexico. At 9,300 feet it can be reached by road from Alamogordo, scene of the first man-made atomic explosion. Also at exactly this same altitude, 9,300 feet, is France's Pic du Midi Observatory in the central Pyrenees.

In the altitude level that centers about 3,000 feet higher, or about the 14,000-foot level, research stations are fewer and less well distributed. The United States possesses the only continuously operating facility—the Mount Evans Laboratory in Colorado. Located at 14,156 feet, this station is also within a short distance of Denver and it can be reached by road, though this road is not now kept open during the winter.

In Peru, at Morococha, about 90 miles from Lima, there is a high altitude laboratory—The Institute of Andean Biology—devoted primarily to a study of the physiological effects of high altitudes. The Institute building, at 14,900 feet, is easily reached and well equipped.

From this location, heights up to 17,000 feet can be gained without having to engage in any mountaineering regarded as difficult.

In both North and South America, many peaks are suitable for future high altitude laboratories. Because scientists have found that cosmic rays are affected by latitude, they would like to see a string of research posts down the western coasts of the two continents.

In the United States alone there are more than 50 peaks over 14,000 feet high, although the highest spot in this country, Mount Whitney's peak in California, is only 14,495 feet. Three of these lofty mountains already have roads to their summits.

High peaks fairly easy to reach also abound in South America. At many of these high altitude places, mining communities already exist, making access and setting up much easier.

## Three Areas Left

Since the Caucasian mountains are not now open to scientists from the western world, Africa, Australia and India are the only areas left for future establishment of high altitude laboratories.

Stations in all three of these areas would be most welcomed by scientists and would provide valuable data. Probably the mountains of India promise the best opportunity of furnishing a high altitude laboratory in the near future. Cosmic ray scientists, particularly, would find such a station of special value, because it would be half way round the world in longitude from the Americas.

Science News Letter, August 18, 1951

## PLANT PATHOLOGY

### Name Changes But Oak Wilt Still Kills Trees

► **THE FUNGUS** that causes the dread oak wilt disease, tree killer now felling oaks over much of northeastern United States, will have a new name. The disease it causes will still be known as oak wilt, however, and it will still be just as deadly.

Reason for the name change for the fungus is the discovery of a new stage of the spore, the first time such a stage has been reported. Dr. T. W. Bretz of the Department of Agriculture's Experiment Station at Columbia, Mo., discovered the ascospore, or sexual, stage. A part of the name of any fungus shows the highest stage of development it has reached, and the just-discovered stage is higher than those previously reported for the oak wilt fungus, now known as *Chalara quercina* Henry.

Science News Letter, August 18, 1951





**ON TOP—Jungfrauoch in the Swiss Alps is one of the oldest, most well established high altitude research stations. Equipment is carried to the station through a four-and-a-half mile tunnel, to give entry to the outpost in all weather.**

#### ICHTHYOLOGY

### Salmon May Smell Its Way to Spawning Place

➤ IS IT the silver salmon's sense of smell that leads it back to spawn in the same stream where it was born?

Field tests just begun at Quilcine, Wash., may give the answer to this mystery in three or four years. For then, fingerling silver salmon now being raised in water into which very small amounts of strong-smelling chemicals are dripped will be returning to spawn.

Fishery biologists hope that, by putting the same small amounts of the same odoriferous chemicals into water of other streams at that time, silver salmon may be diverted to different spawning grounds. Laboratory tests have shown that the fish can easily smell the difference between waters of two streams. Drs. Arthur Hasler and Warren Wisby of the University of Wisconsin and William Hagen, Jr., of the U. S. Fish and Wildlife Service report.

Specially built aquariums, where water can be changed and new odors introduced without disturbing the fish, were used to show that the salmon have extremely sharp noses. In one end of each aquarium there is a feeding area equipped with a light electrical shocker.

The scientists found that it does not take the fingerlings long to learn that water from one stream means food is available, while water from another brings a mild shock. The fish keep the ability to

tell two different streams for a long time, even after testing is discontinued.

If the field tests show that they keep their smell memory until spawning time, odors could be used to entice salmon to selected streams for spawning.

Science News Letter, August 18, 1951

#### AERONAUTICS

### Flying Boat Floating Dock Totes Big Planes to Shore

➤ A SORT of floating dock revealed in College Point, N. Y., can crawl under a giant flying boat that has landed in the water, float it toward the shore, then carry it high up on dry land to a parking platform.

This seaplane beaching gear, as it is called, is a self-powered device that can submerge itself, move forward, backward or sideways, or crawl onto sandy beaches on its own treads.

In general it resembles the floating docks used to handle large surface ships and raise them out of water for repairs. It has two vertical flotation units spaced far enough apart to accommodate the hull of a flying boat.

A cradle between the flotation units, fitted with adjustable pillows, supports the hull. In picking up a flying boat, the units are partly filled with water. It can then crawl under the tail of the plane and forward to a point under the plane's center of gravity. Then the water in the flotation units is replaced by air.

The gear is propelled by two engines at diagonally opposite ends of the floats. These propellers can be rotated through 360 degrees which permits movement in any direction. As the shore is approached the operator of the beaching gear transfers the power from the propellers to three caterpillar treads under the device. This permits it to travel over normal beach sands.

This beaching gear was built for the U. S. Navy by the Edo Corporation.

Science News Letter, August 18, 1951

#### INVENTION

### Puncture-Proof Tire Is Solid With Air Tubes

➤ AN AUTOMOBILE tire, claimed to be safe from such road hazards as punctures, blowouts, cuts and bruises, is described by the inventor as an air-bearing solid tire. Patent 2,563,446 was awarded on it to Sidney Halpern, Jacksonville, Fla.

The tire has a base strip to fit the rim of the wheel and a casing with tread as ordinary tires. Inside construction is different. Running around the center is a number of rubber tubes with aid sealed within them. Outside of these are other rubber tubes running in a crosswise direction. These are held apart by horseshoe-shaped wedges. The whole is vulcanized into an integral mass.

Science News Letter, August 18, 1951



## Stimulating Books in the field of Human Behavior

☐ **Bases of Human Behavior:**  
*A Biologic Approach to Psychiatry*  
by Leon J. Saul, M.D.  
New, 1951. 150 Pages. \$4.00

☐ **Emotional Maturity:**  
*The Development and Dynamics of Personality*  
by Leon J. Saul, M.D.  
1st Edition, 1947. 339 Pages. \$5.00

☐ **Principles and Practice of the Rorschach Personality Test**  
by W. Mons, M.R.C.S., L.R.C.P.  
2nd Edition, issued in America in 1951.  
176 Pages. \$4.00

☐ **Handbook of Psychiatry**  
by Overholser and Richmond  
1st Edition, 1947. 252 Pages. \$4.00

☐ **Crime and the Mind**  
by Walter Bromberg, M.D.  
1st Edition, 1948. 219 Pages. \$4.50

☐ **Saints, Sinners and Psychiatry**  
by Camilla M. Anderson, M.D.  
1st Edition, 1950. 206 Pages. \$2.95

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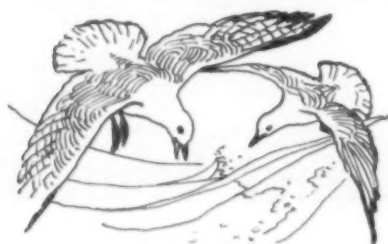
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ORNITHOLOGY

## NATURE RAMBLINGS



Seagulls

► VOYAGERS OVERSEAS often have the monotony of the world's greatest desert—the open ocean—relieved by the sight of seagulls far out from shore. These birds have the habit of following departing ships and of meeting incoming ones, frequently some hundreds of miles from the nearest land. Sailing vessels, which go more slowly and less relentlessly than fast steamers, sometimes have gull companions all the way.

It isn't just friendliness that brings the gulls. Like all living things, they have to have food, and the gull is a follower of the humble but useful calling of garbage collector. It watches most closely the galley portholes, and can be depended on not to let any edible morsels fall into the water unattended to.

Fishing fleets are even more ardently followed by gulls than are passenger boats. They throw overboard quantities of offal and unmarketable fish, which are as so much manna to the hovering birds. Sometimes they make themselves nuisances by alighting on the decks and stealing such fish as they are able to make off with.

So used are we to gulls as sea birds that "seagull" has become a single word. Most of us say "seagull" when we mean "gull." When we hear of seagulls against a back-

ground of prairie, or desert, or Rocky Mountain peaks, at first it causes us to blink, and to doubt the seriousness of the speaker.

Yet gulls—real seagulls—are commonplace sights around the shores of a number of our large inland lakes, apparently quite as much at home as ducks or snipe or herons. They forage along the waterfronts of Chicago and other Great Lakes cities, and being indefatigable scavengers, they find congenial pickings. Even in winter they remain on this chain of American Mediterraneans, apparently little discouraged by snow on shore and pack ice on the water.

Presumably their winter casualty list is high, but there are always enough survi-

vors or new immigrants to keep up the gull population.

The gull population of the Great Salt Lake and of Yellowstone Lake is not permanent. Gulls there have become migrants, as regular in their seasons as robins or bluebirds. They go to the Gulf of California in winter, it is said, as do also the pelicans with whom they compete for fish in these upland waters.

If you visit Salt Lake City, the Mormons are sure to show you the Seagull Monument in the Temple grounds. Seagulls played the role of robins, as insect destroyers, at a very critical period in the history of the Mormon colony, and they are treated with an almost religious reverence in Utah now.

Science News Letter, August 18, 1951

### BIOCHEMISTRY

## Light on Brain Processes

Glutamic acid, chemical that has raised intelligence level of some feeble-minded children, prevents mice deaths from sound-caused fits.

► GLUTAMIC ACID, remarkable chemical that has raised the intelligence level of some feeble-minded children and has improved the learning ability of rats, now has been used on mice to prevent deaths due to sound-caused fits.

This research, which throws light on the chemical processes of the brain and may help explain why glutamic acid sometimes makes people brighter, was conducted at the R. B. Jackson Memorial Laboratory in Bar Harbor, Me., by Drs. Benson Ginsburg, of the University of Chicago, Sherman Ross, now of the University of Maryland, Mildred J. Zarnis and Agnes Perkins.

At the Jackson Laboratory, mice have been bred which are specially susceptible to noise. When these mice are put in an ordinary galvanized iron washtub, eight out of ten will go into convulsions at first sound of a doorbell. And up to nine out of every ten of those with fits may die.

Giving the animals glutamic acid does not prevent the noise-caused fits to which they have inherited sensitivity. But it does prevent many of the deaths. Recoveries are increased by 39%. Surprisingly, the lives saved by the chemical are chiefly those of males.

Glutamic acid is an amino acid which is made in considerable amounts in the bodies of mammals. It is a non-essential in diet.

In attempting to explain theoretically the action of this chemical, the investigators reason that it acts as it does precisely for the reason that it is a non-essential. A small surplus of glutamic acid added to a satisfactory diet favors a higher concentration in the brain cells of a related chemical, alpha-ketoglutaric acid, thus increasing the

energy output. Glutamic acid is one of a large number of chemicals capable of affecting brain metabolism and it acts through the chemical process known to biochemists as the tricarboxylic acid cycle. This is a dynamic cycle in brain metabolism about which little is actually known scientifically; it is important in providing oxygen to the brain cells.

The effects of glutamic acid on intelligence may depend upon the same metabolic events, it was suggested. Reason for the conflicting results that have been obtained when glutamic acid was tried in an effort to boost intelligence may be that the different investigators did not use genetically uniform subjects. Individuals probably differ in their inherited ability to respond to this chemical.

Science News Letter, August 18, 1951

### INVENTION

## Low-Lead Glass Designed To Use in Television Tubes

► A LOW-LEAD glass suitable for use in television image tubes, and other glass bulbs or tubes used in the electrical field, has been awarded a patent. It contains much less lead than the types now used and is, therefore, lighter and less costly.

The usual high-lead glass is made from a mixture containing approximately 29.5% lead oxide. In the new product, silica and the other metal oxides are used but the lead oxide content employed is only approximately 11.4%. The inventors use a combination of lead oxide with barium oxide, using a relatively small amount of the latter. However, they use a larger amount of silica

Science News Letter, August 18, 1951

## YOUR SKIN AND ITS CARE

By H. T. Behrman, M.D., and O. L. Levin, M.D.

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than included in ordinary lead glass. The result is a product that has about the same characteristics as the older lead glass it proposes to replace.

Patent 2,562,292 was issued to Harold R.

Black and Lawrence V. Gagin, Toledo, Ohio, for this invention. Patent rights have been assigned to Owens-Illinois Glass Company, also of Toledo.

Science News Letter, August 18, 1951

## PSYCHOLOGY

## Eyes "Scan" While Fixating

► THE WAY your two eyes and brain work together in binocular vision is more complicated than scientists have thought, it is indicated by a report to the International Congress on Psychology in Stockholm by an American delegate Dr. Lorrin A. Riggs of Brown University.

The explanation previously accepted takes into account that your two eyes are always the same distance apart—about two and a half inches. The view of an object as seen by your left eye is therefore slightly different from that picked up by your right eye. The brain, combining these two views as the two photographs are combined in the old-fashioned parlor entertainment, the stereoscope, sees the objects with form and depth.

Now Dr. Riggs has found that your two eyes do not keep still when you are looking at an object. Instead they are constantly moving and their movement is not always synchronized.

Working under a contract with the Office of Naval Research, Dr. Riggs developed a very precise and delicate method for making an exact record of these movements when the individual was trying to fixate

steadily on a particular point. Fitting contact lenses over the eyes in such a way that there was no appreciable slipping, he attached tiny mirrors to these lenses and focussed the reflections on a moving film.

There are relatively large involuntary drifts and jerks of the eye, Dr. Riggs found, and in these the two eyes are rather closely synchronized. But then there is a fine tremor, perhaps a natural result of the fact that the eyeball is balanced between pairs of antagonistic muscles. This tremor is fast, up to 90 movements per second and each eye moves independently.

This means that at any one instant, corresponding points on the retinas of your two eyes are not necessarily just two and a half inches apart; the separation may deviate from the average distance as much as 20 seconds of arc.

Therefore, concludes Dr. Riggs, the brain must do more than combine the images falling on two anatomical corresponding points on the retinas of the two eyes. Both the spatial and temporal patterns of impulses from the two eyes must somehow be combined centrally as the two eyes "scan" the object.

Science News Letter, August 18, 1951

## ENTOMOLOGY

## Mosquitoes Radiotagged

► TAGGING MOSQUITOES in northern Canada with radioactive phosphorus is helping U. S.-Canadian defense research teams learn how to control the pest.

There are enormous numbers of mosquitoes in the timberline areas of northern Canada and Alaska, estimated at from one to several million adults per acre in some regions. These and other biting insects must be controlled if soldiers are ever to fight efficiently in infested places.

Drs. Charles C. Hassett and Dale W. Jenkins of the Army Chemical Corps loosed about 3,000,000 mosquitoes in the Warkworth region near Churchill, Manitoba, after feeding the larvae on radioactive phosphorus.

Then, for the next six weeks at distances up to about a mile from the release point, they collected mosquitoes in nets. Although about 3,000,000 radioactive mosquitoes were released, so heavily infested is the area that only 141 tagged pests were recovered.

These 141, combined with other observations made at the same time, were enough,

however, for Drs. Hassett and Jenkins to conclude that the type mosquito they studied—*Aedes communis*—does not move very far from its breeding grounds, that it rests on leaves and that it does not attack human beings during the daytime.

The mosquito larvae, reared in specially prepared tanks at the release site, were fed finely ground dog food. Radioactive phosphorus, as a solution of potassium dihydrogen phosphate, was added to the tank breeding water.

The work was sponsored jointly by the Army Chemical Corps and the Canadian Defence Research Board.

Science News Letter, August 18, 1951

## NUTRITION

## Frozen Avocado Keeps Its Color

► A FROZEN avocado product that will keep its color long enough to be stored at least a year has been developed.

Made in the form of a spread, most conveniently packaged in collapsible metal tubes, the avocado product will be a means of using otherwise wasted surplus and spoiled fruit.

Avocados turn brown very quickly when exposed to air or when heated, and previous attempts to preserve slices and halves by heating or freezing have been unsuccessful. Housewives, however, have been able to make a popular spread called "guacamole," from pureed avocados, salt, onion powder, and lemon or lime juice. This product normally retains its color from four to eight hours.

By changing slightly the proportions and the added ingredients, Dr. E. A. Beavens, R. J. McColloch and B. W. Nielsen of the U. S. Department of Agriculture's Food and Vegetable Chemistry Laboratory, have obtained a more acid product that keeps its light green color and avocado flavor in frozen storage for at least a year.

Science News Letter, August 18, 1951

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BIOLOGICAL INVESTIGATIONS IN MEXICO: Smithsonian Misc. Collections Vol. 115—Edward A. Goldman—*Smithsonian Institution*, 476 p., illus., paper, \$4.50. Report of the Nelson and Goldman expeditions to Mexico, 1892-1906, in which 17,400 mammals and 12,400 birds were obtained.

BRITISH AND AMERICAN ENGLISH SINCE 1900—Eric Partridge and John W. Clark—*Philosophical Library*, 342 p., \$4.75. A British and American author team up to produce an "informal" (neither journalistic nor arbitrary) history of English as spoken in Great Britain, the United States, and the British Dominions.

CHAMBER'S DICTIONARY OF SCIENTISTS—A. V. Howard—*Dutton*, 250 p., illus., \$4.00. Concise biographies of the people who have shaped the course of science with a convenient topical index.

CONTROL OF INSECTS IN STORED AND MANUFACTURED TOBACCO: U. S. Dept. of Agriculture Circular No. 869—Joseph N. Tenhet and C. O. Barc—*Govt. Printing Office*, 32 p., illus., paper, 15 cents. The cigarette beetle, the tobacco moth and other pests are discussed.

CRUZ DAS ALMAS, A BRAZILIAN VILLAGE: Smithsonian's Institute of Social Anthropology Publication Number 12—Donald Pierson—*Govt. Printing Office*, 240 p., illus., paper, \$1.50. A study of the lives of rural people living not too far from Sao Paulo, Brazil.

DOWN TO EARTH: Mapping for Everybody—David Greenhood—*Holiday House*, Revised ed., 262 p., illus., \$5.00. A book for the amateur on getting the most out of maps; how to make your own and how to form a collection.

EVERYDAY WEATHER AND HOW IT WORKS—Herman Schneider—*McGraw-Hill*, 189 p., illus., \$2.75. Mom and Dad will not be plagued with questions about the weather which they cannot answer if Junior has this beautifully illustrated book.

INTRODUCTION TO GEOGRAPHY—Henry M. Kendall, Robert M. Glendinning and Clifford H. McFadden—*Harcourt, Brace and Co.*, 752 p., illus., \$6.25. Designed to make fundamental concepts regarding man's homelace interesting and profitable.

MARRIAGE AND THE JEWISH TRADITION: Toward a Modern Philosophy of Family Living—Stanley R. Brav, Ed.—*Philosophical Library*, 218 p., \$3.75. Essays drawn from Jewish literature designed to aid in the solution of contemporary problems.

MOTORIST'S FIX-IT-BOOK—*Popular Mechanics*, 144 p., illus., \$2.00. Discusses important automobile servicing and upkeep problems together with many useful hints on auto care.

PRACTICAL ELECTRICITY AND MAGNETISM—Maurice Rubin—*Chemical Publishing Co.*, 356 p., illus., \$7.50. An elementary book for layman and student.

PSYCHOLOGICAL ANALYSIS OF ECONOMIC BEHAVIOR—George Katona—*McGraw-Hill*, 347 p., illus., \$5.00. Explaining the psychological

factors behind business cycles, inflation, spending, saving and other economic events.

RADIO AND TELEVISION SOUND EFFECTS—Robert B. Turnbull—*Rinehart*, 325 p., illus., \$4.50. How those creaking doors, galloping hooves, and splashing water are produced.

RADIOACTIVITY APPLIED TO CHEMISTRY—Arthur C. Wahl, Editor—*Wiley*, 604 p., illus., \$7.50. Telling how to trace the fate of an atom in a chemical reaction through radioactivity.

THE SKIN PROBLEM FACING YOUNG MEN AND WOMEN—Herbert Lawrence—*Timely Publications*, 70 p., paper, \$1.50. About an important teen-age problem—pimples.

SOLVENT EXTRACTION OF COTTONSEED OIL WITH ISOPROPANOL—W. D. Harris and J. W. Hayward—*Texas Engineering Experiment Station*, 72 p., illus., paper, free upon request to publisher, Texas A. & M. College, College Station, Texas.

SOME ORNAMENTAL SHRUBS FOR THE TROPICS—Edward P. Hume—*Govt. Printing Office*, 151 p., illus., paper, 50 cents. Shrubs tested at the Federal Experiment Station in Puerto Rico and those seen in Puerto Rican gardens are included in this booklet.

TRACE ELEMENTS IN PLANT PHYSIOLOGY—T. Wallace—*Chronica Botanica*, 160 p., illus., paper, \$4.50. A Symposium organized by the International Union of Biological Sciences at the Rothamsted Experimental Station.

THE WRIGHT BROTHERS—Fred C. Kelly—*Farrar, Straus and Young*, Revised ed., 340 p., illus., \$5.00. An authorized biography of the Wright brothers brought up to date with the story of the return of the 1903 Kitty Hawk plane to the United States.

Science News Letter, August 18, 1951

## INVENTION

### Bacon Rinds and Pork Skin Made into Digestible Food

► BACON RINDS and pork skin are made into a crisp, readily digestible and tasty food by a process which brought patent 2,562,850 to James C. Winslow of Los Angeles. Rights are assigned to George A. Darrow of Glendale, Calif. An advantage of this process over earlier ones is that scraps of rinds and skin can be used as well as large pieces.

The process consists in cooking the rinds and skins under high pressure in a pressure cooker and at a temperature approximately 275 degrees Fahrenheit. This reduces them to gelatinous conditions, with fats and greases cooked out. The gelatinized material is rolled into a very thin sheet, cut into small rectangular pieces, and fried in vegetable oil to form "chips" for packaging and eating.

Science News Letter, August 18, 1951

## On This Week's Cover

► THE GIANT prism shown on the front cover of this week's SCIENCE NEWS LETTER, largest single prism in the world, is destined to cover the 33-inch eye of the ADH Baker-Schmidt telescope at the Harvard College Observatory's Boyden Station at Bloemfontein, South Africa. The telescope is jointly operated by the Armagh Observatory of North Ireland, Dunsink Observatory of Eire and Harvard. It was built last year for Harvard's "Hub of the Universe" expedition.

The new prism will yield spectral photographs of all the stars in the field of the telescope at the time of exposure, revealing data of their composition.

## PLANT PATHOLOGY

### Virus Attacks Sugar Beets in Britain

► AN AS YET unidentified, but possibly dangerous virus that attacks sugar beets has been discovered to be quite widespread in England and Scotland.

Dr. Kenneth M. Smith of Molteno Institute's Agricultural Research Council, in Cambridge, is investigating the new virus he found present in a high percentage of ordinary seed beets in the British Isles. It is probably spread by insects, he states. (NATURE, June 30). Although the new virus has not yet harmed the sugar beet crop, growers should be alerted to its possible menace.

Science News Letter, August 18, 1951

## SURGERY

### Stomach Rupture Rare In Newborn Babies

► TWO CASES of the rare condition of rupture of the stomach of a newborn baby were treated at Trull Hospital, Biddeford, Me., within less than three months.

One baby was saved by surgery, the other died. Only 20 other cases of this condition could be found in medical literature. The two in Biddeford are reported to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION by Drs. Maurice Ross, Paul Stanley Hill, Jr., and Carl M. Haas of Saco, Me.

Science News Letter, August 18, 1951

## RADIO

Saturday, Aug. 25, 1951, 3:15-3:30 p. m. EDT  
"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Miss Jane Stafford, medical staff writer of Science Service, will discuss with Mr. Davis the "Battle Against Polio."



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## 1 TEXTILE COLLECTION

Cotton yarn that disappears in water; fabric coated on one side with tiny particles of aluminum for added heat; plant s'em containing ribbons of fiber used to make cloth—these are the exciting objects contained in the COTTON DEVELOPMENTS, NEW FABRICS and RAMIE UNITS making up this collection. In the picture you see the tricky new cotton yarn, which looks and feels like ordinary cotton yarn, ballooning out as it is dipped in water. It will dissolve and disappear entirely in water. Among the 28 specimens that will be yours if you select this collection are Orlon, Vicara, Saran, water-soluble yarn, waterproof coating, resin-impregnated cotton, crease-resistant fabric, soil-resisting cotton, woolen overcoating, woolen topcoating, ramie ribbons, degummed fiber and ramie fabric.

## 2 TASTE COLLECTION

Only spice that is naturally blue; crystal used to intensify flavors already present; edible wetting agent often used in chocolate—these and many other intriguing specimens are combined in the SEASONING, TASTE ENHANCERS and LECITHIN UNITS which make this tasty collection. There are 18 specimens in all, including monosodium glutamate, soluble pepper, seasoned salt, bayleaves, cardamom, cassia, cloves, ginger, nutmeg, poppy seed, rosemary, soybeans, soybean lecithin and lecithinated flour.

## 3 CHEMICAL COLLECTION

Pellets that absorb moisture from the air; fluid good for putting out fires when it is mixed with water; cloth that does not rot easily—these are the interesting objects contained in the BASIC CHEMICALS, WETTER WATER and FUNGICIDE UNITS making up this collection. The 15 specimens to be found in these three packages include limestone, rock salt, soda ash, calcium hypochlorite, calcium chloride, fire-lighters, fire-fighting liquid, treated wool and fungi-resistant fabric.

## 4 PLANT COLLECTION

Seed of Glitters marigold that produces chrysanthemum-like blossoms three inches across; cotton that naturally grows green and brown in the boll; oilseed with many food and industrial uses—these and many other surprising specimens are contained in the 1951 SEED, COTTON BOLL and SOYBEAN UNITS making up this collection. The 15 specimens include marigold and cucumber seeds, cotton tinted brown and green by nature, complete cotton boll, cottonseed meal, cottonseed hulls, soybean flakes, soybean nutrient for streptomycin mold and crude soybean oil.

## 5 HOME COLLECTION

Plastic spoon for measuring coffee; reinforced plastic film for shelf and table covering; expanded mineral that makes concrete light enough to float in water—these are the intriguing specimens included in the HOME AND OFFICE, HOUSING MATERIALS and LIGHT-WEIGHT AGGREGATE UNITS contained in this collection. Among the 17 items in these three boxes are coffee measure, airfoam, plastic and wire screening, wood fiber insulation board, plywood, glass insulation, glass fiber fabric, pumice, expanded perlite and expanded vermiculite.

## 6 MINERAL COLLECTION

Crystal from which is extracted the lightest of all metals; rock containing organic materials that can be converted to oil when heated; siliceous rock containing magnetic oxide of iron—these are the interesting objects in the LITHIUM, OIL SHALE and IRON ORE UNITS comprising this collection. Among the 16 specimens that will be yours if you choose this collection are natural spodumene, lithium chloride, lithium nitride, pure zinc, lithium treated zinc, taconite, taconite pellets, standard iron ore, oil shale, crude shale oil, diesel fuel and spent oil shale.

## 7 HOBBY COLLECTION

Sea shell that looks like a worm; top that makes disks change color as they are twirled around; chemical that changes color as it absorbs moisture—these are the amazing objects contained in the SEA SHELL, COLOR TOP and WEATHER INDICATOR UNITS. The 17 specimens in this set include worm shell, bleeding tooth shell, pectin, tellina, strumbus, cowry shell, color top, colored disks, silica gel impregnated with cobalt chloride and hair-actuated humidity indicator.

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❁ **VACUUM** device, to bring painless death to unwanted household animals, has two pipe-connected chambers, one for the animals, the other for the vacuum. At the turn of a valve, air rushes from the occupied chamber to the vacuum, the evacuation causing instant death.

Science News Letter, August 18, 1951

❁ **FLOOR POLISHER**, an improved electric type, uses two rotating sturdy brushes, one for wax applying and one for polishing. The brushes rotate in opposite directions at high speed, and are recessed in the motor housing to give a low center of gravity.

Science News Letter, August 18, 1951

❁ **SWORDFISH-LIKE** blade, projecting forward from the earth-moving blade of the combination tractor and blade known as a bulldozer, is used to clear land covered with trees and will fell up to five acres of dense timber in a day. It will cut a 24-inch cottonwood with a single pass.

Science News Letter, August 18, 1951

❁ **LOADING** apparatus, for use with air-planes, is a portable outdoor elevator powered by electricity from the plane itself. When desired, it can be carried in the plane to advanced landing fields in combat areas. It is suitable to use in loading litter patients.

Science News Letter, August 18, 1951

❁ **SUNGLASSES** with double lenses shown in the picture give the wearer protection against glare under any situation. The front lenses are stationary in the plastic frame but the inner lenses, a polaroid type,



rotate with a touch of the finger. They can be set to give the brightness desired.

Science News Letter, August 18, 1951

❁ **GARBAGE** unit, for kitchen use, has a metal frame to fix to the wall to which is attached a disposable moisture-proof paper bag to hold the kitchen scrap. A tight-fitting cover holds odors in the bag, which when filled is put in the outside garbage can.

Science News Letter, August 18, 1951

❁ **PLASTIC** mirrors, unlike those of glass, do not shatter, are shock-resistant, and do not steam or cloud. They are about one-third as heavy as glass mirrors of the same size. Made of transparent plastic, they have a metallic reflecting surface deposited on them by a vacuum process.

Science News Letter, August 18, 1951

❁ **LUMINOUS** dial on the telephone makes it easy to find and use the household instrument in the dark. The light is provided by a phosphorescent plastic disk, which comes in two halves so that it is inserted between the dial rotary and the dial face of any standard dial telephone.

Science News Letter, August 18, 1951

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## Do You Know?

Astronomers do not know what is happening in the universe at the present time; they know what was happening many years ago when light from the stars started on the long trip to the earth.

Hybrid sugar beets, now under trial, yield an average of 1.5 tons per acre more than present commercial strains.

More fertilizer is needed on lawns with shade trees than on open lawns because the spreading roots of the trees use the plant food.

Cattle with the disease called listerellosis are apt to walk around in circles; it is a destructive brain disease caused by a tiny germ.